

Gulls

Wadden Sea

The definition of gulls that this study will use is: Any of numerous long-winged web-footed aquatic birds within the subfamily Larinae of the family Laridae (Gull, 2024). Gulls are in general highly opportunistic migrating omnivores, but primarily feed on fish, marine invertebrates, and small mammals (Calvino-Cancela, 2011; Annett & Pierotti, 1999; Ewins et al., 1994). However, various species gulls also eat fruit and 'garbage' if that is a more abundant food source (Calvino-Cancela, 2011; Annett & Pierotti, 1999; Ewins et al., 1994). This study identified 8 species of gulls that can be found in the Wadden Sea (Hamilton, 1981; Courtens & Stienen, 2006; Jongbloed et al., 2023). The most common species of gulls include: Herring gull (*Larus argentatus*), Lesser black-backed gull (*Larus fuscus*), and Greater black-backed gull (*Larus marinus*) (Hamilton, 1981; Courtens & Stienen, 2006; Jongbloed et al., 2023). No invasive species in the Wadden Sea were identified by this study.



History/ Population trends

Not much is known of the origin of Gulls. However, in the last couple of decades an increase can be found in the reduction of gull population of almost all species of gull, identified by this study. The most prominent cause of population decline, as suggested by Duijns et al., is mortality because of wind turbines at sea (2020). According to Duijns et al., especially large gulls are at risk of colliding with wind turbines and the numbers of collision victims from wind farms can be predicted using a collision-rate model (Duijns et al., 2020). These predicted collision numbers are modelled using turbine-related parameters (turbine size, rotor height, speed) and species-related parameters (bird density, flight height distribution, flight speed, percentage of time in flight, night activity, wingspan, size, avoidance rate) (Duijns et al., 2020).

Miscellaneous

- The largest species of gull in the world is the Greater black-backed gull (Olsen, 2018). The Greater black-backed gull reaches an average wingspan of 150cm to 170cm and an average weight of 1.5kg to 1.8kg (Olsen, 2018).
- Gulls are most commonly found in marine environments where freshwater is rare. In order to get enough to drink, gulls have evolved a specialized gland that can separate salt from water (Fänge et al., 1958). This allows gulls to drink seawater, instead of freshwater (Fänge et al., 1958).

Diet

- Flatfish (Calvino-Cancela, 2011; Annett & Pierotti, 1999; Ewins et al., 1994)
- Sandeel (Calvino-Cancela, 2011; Annett & Pierotti, 1999; Ewins et al., 1994)
- Sprat (Calvino-Cancela, 2011; Annett & Pierotti, 1999; Ewins et al., 1994)
- Herring (Calvino-Cancela, 2011; Annett & Pierotti, 1999; Ewins et al., 1994)
- Mackerel (Calvino-Cancela, 2011; Annett & Pierotti, 1999; Ewins et al., 1994)
- Crustaceans (Calvino-Cancela, 2011; Annett & Pierotti, 1999; Ewins et al., 1994)
- Other detritivores (Calvino-Cancela, 2011; Annett & Pierotti, 1999; Ewins et al., 1994)
- Annelida (Calvino-Cancela, 2011; Annett & Pierotti, 1999; Ewins et al., 1994)
- Bivalves (Calvino-Cancela, 2011; Annett & Pierotti, 1999; Ewins et al., 1994)
- Starfish (Calvino-Cancela, 2011; Annett & Pierotti, 1999; Ewins et al., 1994)
- Detritus (Calvino-Cancela, 2011; Annett & Pierotti, 1999; Ewins et al., 1994)
- Fruit (Calvino-Cancela, 2011; Annett & Pierotti, 1999; Ewins et al., 1994)
- Small mammals (Calvino-Cancela, 2011; Annett & Pierotti, 1999; Ewins et al., 1994)

Sources

- Annett, A., & Pierotti, R. (1999). LONG-TERM REPRODUCTIVE OUTPUT IN WESTERN GULLS: CONSEQUENCES OF ALTERNATE TACTICS IN DIET CHOICE. *Ecological Society of America*, 80(1), 288–297.
<https://esajournals.onlinelibrary.wiley.com/doi/epdf/10.1890/0012-9658%281999%29080%5B0288%3ALTROIW%5D2.0.CO%3B2>
- Calvino-Cancela, M. (2011). Gulls (Laridae) as frugivores and seed dispersers. *Plant Ecology*, 212(7), 1149–1157. <https://doi.org/10.1007/s11258-011-9894-2>
- Courtens, W., & Stienen, W. M. (2006). Marine biological valuation of seabirds in the Belgian Part of the North Sea. *Instituut Voor Natuur- En Bosonderzoek*.
<https://www.vliz.be/imisdocs/publications/125701.pdf>
- Duijns, S., Helberg, M., Verstraete, H., Stienen, E. W. M., & Fijn, R. C. (2020). *Origin of large gulls in the North Sea* (By Rijkswaterstaat Zee en Delta; No. 19–257). Rijkswaterstaat Zee en Delta. Retrieved November 22, 2024, from
https://d1wqtxts1xzle7.cloudfront.net/88555314/19_0290_Origin_of_large_gulls_in_the_North_Sea-libre.pdf?1657741461=&response-content-disposition=inline%3B+filename%3DOrigin_of_large_gulls_in_the_North_Sea_A.pdf&Expires=1732269233&Signature=Milak1qrDTYQmbYQjNmKZze7c6eNw7cWeuGxDkwpb04oA3Q-dXzD6qbkv4Au0IbtikCH9l7Hs2RuDLtaKX32lV3ug4MrGDttRdU7cIqFCNBpfNxarX8rEsCEjdv0fx90vgZGFF3F71jEmygLxZ4VrdIZ0ncKGxdbMMeVVHOSgDDm9Fy1ueTxopfNJxRElr2W4KzK-bNNz4SdFA3D2xgcvWtZIOQjhsyjnqxptkajNkbCBjPUSlhc~RA30muYnlNaXZ5IJgzP4Ucs7zRRZhQpQEjAijCX~LckF774iTmcSTKBKPLqNTSXYmspOLNHBlpYd~V-CdIZjZzDwBzXdz8PYg_&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA

Ewins, P. J., Weseloh, D. V., Groom, J. H., Dobos, R. Z., & Mineau, P. (1994). The diet of Herring Gulls (*Larus argentatus*) during winter and early spring on the lower Great Lakes. *Hydrobiologia*, 279–280(1), 39–55. <https://doi.org/10.1007/bf00027839>

Fänge, R., Schmidt-Nielsen, K., & Osaki, H. (1958). THE SALT GLAND OF THE HERRING GULL. *Biological Bulletin*, 115(2), 162–171. <https://doi.org/10.2307/1539022>

Gull. (2024). In *Merriam-Webster Dictionary*. Retrieved November 21, 2024, from <https://www.merriam-webster.com/dictionary/gull>

Hamilton, N. (1981). A BIBLIOGRAPHICALLY-ANNOTATED CHECKLIST OF THE BIRDS OF SHETLAND. *MerLEWOOD RESEARCH AND DEVELOPMENT PAPER*, 0308–3675. <https://nora.nerc.ac.uk/id/eprint/6814/1/R%26D084.pdf>

Jongbloed, R., Tamis, J., Van Der Wal, J., De Vries, P., Grundlehner, A., & Piet, G. (2023). *Quick scan of cumulative impacts on the North Sea biodiversity : With a focus on selected species in relation to future developments in offshore wind energy*. <https://library.wur.nl/WebQuery/wurpubs/623068>

Olsen, M. (2018). Gulls of the world. In *Google Books*. Bloomsbury Publishing Plc. Retrieved November 22, 2024, from https://books.google.nl/books?hl=nl&lr=&id=LZhPDwAAQBAJ&oi=fnd&pg=PP1&dq=gulls+AND+%22largest+species%22+OR+%22Biggest+wingspan%22&ots=aRAXl4C8Je&sig=2yJoKqKmuXBXT1W9sjvsLsvEmnw&redir_esc=y#v=onepage&q=gulls%20AND%20%22largest%20species%22%20OR%20%22Biggest%20wingspan%22&f=false